WHAT IS CLAIMED IS:

1. A process for the isomerization of a feed stream comprising at least C_5-C_6 hydrocarbons said process comprising:

   a) separating, in a first fractionation zone, said feed stream comprising at least C_5-C_6 hydrocarbons into a first stream comprising normal and branched pentanes and lighter boiling hydrocarbons and a second stream comprising normal and branched hexanes;

   b) contacting at least a portion of the first stream and at least a portion of an isomerization zone effluent with an adsorbent in an adsorption section, selectively adsorbing normal paraffins, and producing a raffinate stream having a decreased concentration of at least one normal paraffin component relative to said portion of the first stream combined with said portion of the isomerization zone effluent, and the adsorbent having normal paraffins adsorbed thereon;

   c) desorbing the normal paraffins from the adsorbent using the second stream and at least a portion of a second desorbent stream containing normal hexane and monomethylpentane from a second fractionation zone to generate an extract stream containing at least normal pentane, normal hexane, and monomethylpentanes;

   d) isomerizing at least a portion of the extract stream in an isomerization zone containing an isomerization catalyst at isomerization conditions to form said isomerization zone effluent comprising at least C_5 and C_6 isomerized products; and

   e) separating, in a second fractionation zone, said raffinate stream into an isomerate stream, a heavy hydrocarbon stream, and said stream containing normal hexane and monomethylpentane.

2. The process of Claim 1 further comprising said feed stream containing C_7 and higher boiling hydrocarbons and separating, in the first fractionation zone, a third stream comprising components from said feed stream having boiling points higher than that of normal hexane.

3. The process of Claim 1 wherein said adsorption section comprises a simulated moving bed adsorption zone.

4. The process of Claim 1 further comprising passing said isomerization effluent directly to a stabilizer, removing C_4 and lighter hydrocarbons from said effluent and passing the remainder of the effluent to said adsorption section.

5. The process of Claim 1 wherein the adsorbent in said adsorbent section comprises a Ca-A zeolite.

6. The process of Claim 1 wherein said adsorption section operates in the liquid phase.

7. The process of Claim 1 wherein said isomerization catalyst comprises alumina having from 0.01 to 0.25 wt.% platinum and from 2 to 10 wt.% of a chloride component.

8. The process of Claim 3 wherein said adsorption section comprises at least one bed of adsorbent, the total quantity of adsorbent is divided into at least three operationally distinct zones of adsorbent, said first stream and said effluent are charged to a different zone from that of said second stream, and the position of the zones relative to said total quantity of said adsorbent is at least intermittently varied by changing withdrawal and input points for said first stream and said second stream.

9. The process of Claim 1 wherein said raffinate stream has a decreased concentration of normal pentane relative to said first stream.

10. The process of Claim 1 wherein said second fractionation zone comprises a single deisohexanizer column.

11. The process of Claim 1 wherein the second fractionation zone comprises a dividing wall deisohexanizer column.

12. The process of Claim 1 wherein the first fractionation zone comprises a naphtha splitter column.

13. The process of Claim 1 wherein the first fractionation zone comprises a dividing wall naphtha splitter column.

14. A process for the isomerization of a feed stream comprising at least C_5-C_7 hydrocarbons said process comprising:

a) separating, in a naphtha splitter column, said feed stream comprising at least C_5-C_7 hydrocarbons into an adsorption section feed stream comprising normal and branched pentanes and lighter boiling hydrocarbons, a first desorbent stream comprising normal and branched hexanes, and a bottoms stream comprising components from said feed stream having boiling points higher than normal hexane;

b) contacting at least a portion of the adsorption section feed stream and at least a portion of an isomerization zone effluent with an adsorbent in a simulated moving bed adsorption section, selectively adsorbing normal paraffins, and producing a raffinate stream having a decreased concentration of at least one normal paraffin component relative to said portion of the adsorption section feed stream combined with said portion of the isomerization zone effluent, and the adsorbent having normal paraffins adsorbed thereon;

c) desorbing the normal paraffins from the adsorbent using the first desorbent stream and at least a portion of a second desorbent stream containing normal hexane and monomethylpentane from a deisohexanizer column to generate an extract stream containing at least normal pentane, normal hexane, and monomethylpentanes;

d) isomerizing at least a portion of the extract stream in an isomerization zone containing an isomerization catalyst at isomerization conditions and separating and removing C_4 and lighter boiling hydrocarbons to form said isomerization zone effluent comprising at least C_5 and C_6 isomerized products; and

e) separating, in the deisohexanizer column, said raffinate stream into an overhead isomerate stream, a bottoms heavy hydrocarbon stream, and, as a sidecut from the deisohexanizer column, said second desorbent stream.

15. The process of Claim 14 further comprising operating the simulated moving bed adsorption section by:

a) maintaining a net fluid flow through at least three operationally distinct and serially interconnected zones of adsorbent in said adsorption section;

b) maintaining an adsorption zone in said adsorption section, said adsorption zone being defined by the adsorbent located between a feed input stream at an upstream boundary of said zone, and a raffinate output stream at a downstream boundary of said zone;

c) maintaining a purification zone immediately upstream from said adsorption zone, said purification zone being defined by the adsorbent located between an extract output stream at an upstream boundary of said purification zone and said feed input stream at a downstream boundary of said purification zone;

d) maintaining a desorption zone immediately upstream from said purification zone, said desorption zone being defined by the adsorbent located between a desorbent input stream at an upstream boundary of said zone and said extract output stream at a downstream boundary of said zone;

e) passing said portion of the adsorption section feed stream and said portion of an isomerization zone effluent feed into said

adsorption zone at adsorption conditions to effect the selective adsorption of said normal pentane by said adsorbent in said adsorption zone and withdrawing a raffinate output stream from said adsorption zone;

f) passing at least a portion of said first and second desorbent streams into said desorption zone at desorption conditions to effect the displacement of said normal pentane from the adsorbent in said desorption zone;

g) withdrawing an extract output stream comprising said normal paraffins and desorbent from said desorption zone;

h) withdrawing a raffinate output stream comprising isoparaffins and desorbent from said adsorption zone; and

i) periodically advancing through said column of adsorbent in a downstream direction with respect to fluid flow in said adsorption zone, the feed input stream, raffinate output stream, desorbent input stream and extract output stream to effect the shifting of zones through said adsorbent and the production of extract output and raffinate output streams.

16. The process of Claim 14 wherein the naphtha splitter column is a dividing wall naphtha splitter column.

17. The process of Claim 14 wherein the deisohexanizer column is a dividing wall deisohexanizer column.

18. A process for the isomerization of a feed stream comprising at least C_5-C_6 hydrocarbons said process comprising:

a) separating, in a first fractionation zone, said feed stream comprising at least C_5-C_6 hydrocarbons into a first stream comprising normal and branched pentanes and lighter boiling hydrocarbons and a second stream comprising normal and branched hexanes;

b) contacting at least a portion of an isomerization zone effluent with an adsorbent in an adsorption section, selectively adsorbing normal paraffins, and producing a raffinate stream having a decreased concentration of at least one normal paraffin component relative to said portion of the isomerization zone effluent, and the adsorbent having normal paraffins adsorbed thereon;

c) desorbing the normal paraffins from the adsorbent using the second stream and at least a portion of a second desorbent stream containing normal hexane and monomethylpentane from a second fractionation zone to generate an extract stream containing at least normal pentane, normal hexane, and monomethylpentanes;

d) isomerizing at least a portion of the extract stream and at least a portion of the first stream in an isomerization zone containing an isomerization catalyst at isomerization conditions to form said isomerization zone effluent comprising at least C_5 and C_6 isomerized products; and

e) separating, in a second fractionation zone, said raffinate stream into an isomerate stream, a heavy hydrocarbon stream, and said stream containing normal hexane and monomethylpentane.

19. The process of Claim 18 further comprising said feed stream containing C_7 and higher boiling point hydrocarbons and separating, in the first fractionation zone, a third stream comprising components from said feed stream having boiling points above normal hexane.

20. The process of Claim 18 wherein said adsorption section comprises a simulated moving bed adsorption zone.

21. The process of Claim 18 further comprising passing said isomerization effluent directly to a stabilizer, removing C_4 and lighter hydrocarbons

from said effluent and passing the remainder of the effluent to said adsorption section.

22. The process of Claim 18 wherein the adsorbent in said adsorbent section comprises a Ca-A zeolite.

23. The process of claim 18 wherein said adsorption section operates in the liquid phase.

24. The process of Claim 18 wherein said isomerization catalyst comprises alumina having from 0.01 to 0.25 wt.% platinum and from 2 to 10 wt.% of a chloride component.

25. The process of Claim 20 wherein said adsorption section comprises at least one bed of adsorbent, the total quantity of adsorbent is divided into at least three operationally distinct zones of adsorbent, said effluent is charged to a different zone from that of said second stream, and the position of the zones relative to said total quantity of said adsorbent is at least intermittently varied by changing withdrawal and input points for said first stream and said second stream.

26. The process of Claim 18 wherein said raffinate stream has a decreased concentration of normal pentane relative to said first stream.

27. The process of Claim 18 wherein said second fractionation zone comprises a single deisohexanizer column.

28. The process of Claim 18 wherein the second fractionation zone comprises a dividing wall deisohexanizer column.

29. The process of Claim 18 wherein the first fractionation zone comprises a naphtha splitter column.

30. The process of Claim 18 wherein the first fractionation zone comprises a dividing wall naphtha splitter column.

31. A process for the isomerization of a feed stream comprising at least C_5-C_7 hydrocarbons said process comprising:

a) separating, in a naphtha splitter column, said feed stream comprising at least C_5-C_7 hydrocarbons into an isomerization

zone feed stream comprising normal and branched pentanes and lighter boiling hydrocarbons, a first desorbent stream comprising normal and branched hexanes, and a bottoms stream containing components having higher boiling points than normal hexane;

b) contacting at least a portion of an isomerization zone effluent with an adsorbent in a simulated moving bed adsorption section, selectively adsorbing normal paraffins, and producing a raffinate stream having a decreased concentration of at least one normal paraffin component relative said portion of the isomerization zone effluent, and the adsorbent having normal paraffins adsorbed thereon;

c) desorbing the normal paraffins from the adsorbent using the first desorbent stream and at least a portion of a second desorbent stream containing normal hexane and monomethylpentane from a deisohexanizer column to generate an extract stream containing at least normal pentane, normal hexane, and monomethylpentanes;

d) isomerizing at least a portion of the extract stream and at least a portion of the isomerization zone feed stream from the naphtha splitter column in an isomerization zone containing an isomerization catalyst at isomerization conditions and separating and removing C_4 and lower boiling hydrocarbons to form said isomerization zone effluent comprising at least C_5 and C_6 isomerized products; and

e) separating, in a deisohexanizer column, said raffinate stream into an overhead isomerate stream, a bottoms heavy hydrocarbon stream, and the side cut second desorbent stream containing normal hexane and monomethylpentane.

32. The process of Claim 31 further comprising operating the simulated moving bed adsorption section by:

a) maintaining a net fluid flow through at least three operationally distinct and serially interconnected zones of adsorbent in said adsorption section;

b) maintaining an adsorption zone in said adsorption section, said adsorption zone being defined by the adsorbent located between a feed input stream at an upstream boundary of said zone, and a raffinate output stream at a downstream boundary of said zone;

c) maintaining a purification zone immediately upstream from said adsorption zone, said purification zone being defined by the adsorbent located between an extract output stream at an upstream boundary of said purification zone and said feed input stream at a downstream boundary of said purification zone;

d) maintaining a desorption zone immediately upstream from said purification zone, said desorption zone being defined by the adsorbent located between a desorbent input stream at an upstream boundary of said zone and said extract output stream at a downstream boundary of said zone;

e) passing said portion of the isomerization zone effluent into said adsorption zone at adsorption conditions to effect the selective adsorption of said normal pentane by said adsorbent in said adsorption zone and withdrawing a raffinate output stream from said adsorption zone;

f) passing at least a portion of said first and second desorbent streams into said desorption zone at desorption conditions to effect the displacement of said normal pentane from the adsorbent in said desorption zone;

g) withdrawing an extract output stream comprising said normal paraffins and desorbent from said desorption zone;

h) withdrawing a raffinate output stream comprising isoparaffins and desorbent from said adsorption zone; and

i) periodically advancing through said column of adsorbent in a downstream direction with respect to fluid flow in said adsorption zone, the feed input stream, raffinate output stream, desorbent input stream and extract output stream to effect the shifting of zones through said adsorbent and the production of extract output and raffinate output streams.

33. The process of Claim 31 wherein the naphtha splitter column is a dividing wall naphtha splitter column.

34. The process of Claim 31 wherein the deisohexanizer column is a dividing wall deisohexanizer column.